



SEQUENCE LISTING

<110> Bruck, Claudine
Bollen, Alex
Jacobs, Paul
Massaer, Marc

<120> Recombinant Allergen with Reduced
Enzymatic Activity

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<140> 09/554,860

<141> 2000-05-19

<150> PCT/EP98/07521

<151> 1998-11-16

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<213> Artificial Sequence

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ggaggtgcca tcaaccattt gtccgatttg tcgttgatg aattcaaaaa ccgatttttg 240
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TECH CENTER 1600/2900

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			20					25					30		
Phe	Asn	Lys	Ser	Tyr	Ala	Thr	Phe	Glu	Asp	Glu	Glu	Ala	Ala	Arg	Lys
		35					40					45			
Asn	Phe	Leu	Glu	Ser	Val	Lys	Tyr	Val	Gln	Ser	Asn	Gly	Gly	Ala	Ile
	50					55					60				
Asn	His	Leu	Ser	Asp	Leu	Ser	Leu	Asp	Glu	Phe	Lys	Asn	Arg	Phe	Leu
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Ala	Glu	Thr	Asn	Ala	Cys	Ser	Ile	Asn	Gly	Asn	Ala	Pro	Ala	Glu	Ile
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Asp	Leu	Arg	Gln	Met	Arg	Thr	Val	Thr	Pro	Ile	Arg	Met	Gln	Gly	Gly
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Cys	Gly	Ser	Ala	Trp	Ala	Phe	Ser	Gly	Val	Ala	Ala	Thr	Glu	Ser	Ala
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Tyr	Leu	Ala	Tyr	Arg	Asn	Gln	Ser	Leu	Asp	Leu	Ala	Glu	Gln	Glu	Leu
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Val	Asp	Cys	Ala	Ser	Gln	His	Gly	Cys	His	Gly	Asp	Thr	Ile	Pro	Arg
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Gly	Ile	Glu	Tyr	Ile	Gln	His	Asn	Gly	Val	Val	Gln	Glu	Ser	Tyr	Tyr
			180						185					190	
Arg	Tyr	Val	Ala	Arg	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn	Ala	Gln	Arg
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Phe	Gly	Ile	Ser	Asn	Tyr	Cys	Gln	Ile	Tyr	Pro	Pro	Asn	Val	Asn	Lys
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Ile	Arg	Glu	Ala	Leu	Ala	Gln	Thr	His	Ser	Ala	Ile	Ala	Val	Ile	Ile
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ggaggtgcca tcaaccattt gtccgatttg tcgttgatg aattcaaaaa ccgatttttg 240
atgagtgcag aagcttttga acacctcaaa actcaattcg atttgaacgc ctgcagtatc 300
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			20					25					30		
Phe	Asn	Lys	Ser	Tyr	Ala	Thr	Phe	Glu	Asp	Glu	Glu	Ala	Ala	Arg	Lys
	35						40					45			
Asn	Phe	Leu	Glu	Ser	Val	Lys	Tyr	Val	Gln	Ser	Asn	Gly	Gly	Ala	Ile
	50					55					60				
Asn	His	Leu	Ser	Asp	Leu	Ser	Leu	Asp	Glu	Phe	Lys	Asn	Arg	Phe	Leu
65					70				75					80	
Met	Ser	Ala	Glu	Ala	Phe	Glu	His	Leu	Lys	Thr	Gln	Phe	Asp	Leu	Asn
			85						90					95	
Ala	Cys	Ser	Ile	Asn	Gly	Asn	Ala	Pro	Ala	Glu	Ile	Asp	Leu	Arg	Gln
			100					105					110		
Met	Arg	Thr	Val	Thr	Pro	Ile	Arg	Met	Gln	Gly	Gly	Cys	Gly	Ser	Cys
	115						120					125			
Trp	Ala	Phe	Ser	Gly	Val	Ala	Ala	Thr	Glu	Ser	Ala	Tyr	Leu	Ala	Tyr
	130					135					140				
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145					150					155				160	

Ser	Gln	His	Gly	Cys	His	Gly	Asp	Thr	Ile	Pro	Arg	Gly	Ile	Glu	Tyr			
				165					170				175					
Ile	Gln	His	Asn	Gly	Val	Val	Gln	Glu	Ser	Tyr	Tyr	Arg	Tyr	Val	Ala			
			180					185				190						
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			195				200					205						
Asn	Tyr	Cys	Gln	Ile	Tyr	Pro	Pro	Asn	Val	Asn	Lys	Ile	Arg	Glu	Ala			
	210					215					220							
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225				230					235					240				
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			245					250					255					
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			260				265					270						
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	275					280					285							
Asn	Trp	Gly	Asp	Asn	Gly	Tyr	Gly	Tyr	Phe	Ala	Ala	Asn	Ile	Asp	Leu			
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ggaggtgcc	tcaaccattt	gtccgatttg	tcgttggatg	aattcaaaaa	ccgatttttg	240
atgagtgcag	aagcttttga	acacctcaaa	actcaattcg	atttgaatgc	tgaaactaac	300
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 aatgtaaaca aaattcgtga agctttgggt caaaccacaca gcgctattgc cgtcattatt 720
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	35						40					45			
Asn	Phe	Leu	Glu	Ser	Val	Lys	Tyr	Val	Gln	Ser	Asn	Gly	Gly	Ala	Ile
	50					55					60				
Asn	His	Leu	Ser	Asp	Leu	Ser	Leu	Asp	Glu	Phe	Lys	Asn	Arg	Phe	Leu
65					70				75					80	
Met	Ser	Ala	Glu	Ala	Phe	Glu	His	Leu	Lys	Thr	Gln	Phe	Asp	Leu	Asn
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Ala	Glu	Thr	Asn	Ala	Cys	Ser	Ile	Asn	Gly	Asn	Ala	Pro	Ala	Glu	Ile
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Cys	Gly	Ser	Ala	Trp	Ala	Phe	Ser	Gly	Val	Ala	Ala	Thr	Glu	Ser	Ala
	130					135					140				
Tyr	Leu	Ala	Tyr	Arg	Asn	Gln	Ser	Leu	Asp	Leu	Ala	Glu	Gln	Glu	Leu
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Val	Asp	Cys	Ala	Ser	Gln	His	Gly	Cys	His	Gly	Asp	Thr	Ile	Pro	Arg
				165					170					175	

Gly	Ile	Glu	Tyr	Ile	Gln	His	Asn	Gly	Val	Val	Gln	Glu	Ser	Tyr	Tyr
		180						185					190		
Arg	Tyr	Val	Ala	Arg	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn	Ala	Gln	Arg
		195					200					205			
Phe	Gly	Ile	Ser	Asn	Tyr	Cys	Gln	Ile	Tyr	Pro	Pro	Asn	Val	Asn	Lys
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		225				230				235				240	
Gly	Ile	Lys	Asp	Leu	Asp	Ala	Phe	Arg	His	Tyr	Asp	Gly	Arg	Thr	Ile
			245					250					255		
Ile	Gln	Arg	Asp	Asn	Gly	Tyr	Gln	Pro	Asn	Tyr	Ala	Ala	Val	Asn	Ile
		260						265					270		
Val	Gly	Tyr	Ser	Asn	Ala	Gln	Gly	Val	Asp	Tyr	Trp	Ile	Val	Arg	Asn
		275					280					285			
Ser	Trp	Asp	Thr	Asn	Trp	Gly	Asp	Asn	Gly	Tyr	Gly	Tyr	Phe	Ala	Ala
		290				295					300				
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		20					25				30				
Ala	His	Ser	Ala	Phe	Ala	Ala	Asp	Pro	Arg	Pro	Ser	Ser	Ile	Lys	Thr
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Phe	Glu	Glu	Tyr	Lys	Lys	Ala	Phe	Asn	Lys	Ser	Tyr	Ala	Thr	Phe	Glu
	50				55					60					
Asp	Glu	Glu	Ala	Ala	Arg	Lys	Asn	Phe	Leu	Glu	Ser	Val	Lys	Tyr	Val
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Gln	Ser	Asn	Gly	Gly	Ala	Ile	Asn	His	Leu	Ser	Asp	Leu	Ser	Leu	Asp			
				85					90					95				
Glu	Phe	Lys	Asn	Arg	Phe	Leu	Met	Ser	Ala	Glu	Ala	Phe	Glu	His	Leu			
			100					105					110					
Lys	Thr	Gln	Phe	Asp	Leu	Asn	Ala	Cys	Ser	Ile	Asn	Gly	Asn	Ala	Pro			
		115					120					125						
Ala	Glu	Ile	Asp	Leu	Arg	Gln	Met	Arg	Thr	Val	Thr	Pro	Ile	Arg	Met			
		130				135					140							
Gln	Gly	Gly	Cys	Gly	Ser	Cys	Trp	Ala	Phe	Ser	Gly	Val	Ala	Ala	Thr			
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			165					170						175				
Gln	Glu	Leu	Val	Asp	Cys	Ala	Ser	Gln	His	Gly	Cys	His	Gly	Asp	Thr			
		180						185					190					
Ile	Pro	Arg	Gly	Ile	Glu	Tyr	Ile	Gln	His	Asn	Gly	Val	Val	Gln	Glu			
		195					200					205						
Ser	Tyr	Tyr	Arg	Tyr	Val	Ala	Arg	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn			
	210					215					220							
Ala	Gln	Arg	Phe	Gly	Ile	Ser	Asn	Tyr	Cys	Gln	Ile	Tyr	Pro	Pro	Asn			
225					230					235					240			
Ala	Asn	Lys	Ile	Arg	Glu	Ala	Leu	Ala	Gln	Thr	His	Ser	Ala	Ile	Ala			
			245						250					255				
Val	Ile	Ile	Gly	Ile	Lys	Asp	Leu	Asp	Ala	Phe	Arg	His	Tyr	Asp	Gly			
		260						265				270						
Arg	Thr	Ile	Ile	Gln	Arg	Asp	Asn	Gly	Tyr	Gln	Pro	Asn	Tyr	His	Ala			
	275						280					285						
Val	Asn	Ile	Val	Gly	Tyr	Ser	Asn	Ala	Gln	Gly	Val	Asp	Tyr	Trp	Ile			
	290					295					300							
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305					310					315					320			
Phe	Ala	Ala	Asn	Ile	Asp	Leu	Met	Met	Ile	Glu	Glu	Tyr	Pro	Tyr	Val			
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<210> 8

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<223> Mutant of DerP1

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			20					25					30		
Ala	His	Ser	Ala	Phe	Ala	Ala	Asp	Pro	Arg	Pro	Ser	Ser	Ile	Lys	Thr
			35				40					45			
Phe	Glu	Glu	Tyr	Lys	Lys	Ala	Phe	Asn	Lys	Ser	Tyr	Ala	Thr	Phe	Glu
	50					55					60				
Asp	Glu	Glu	Ala	Ala	Arg	Lys	Asn	Phe	Leu	Glu	Ser	Val	Lys	Tyr	Val
65					70					75					80
Gln	Ser	Asn	Gly	Gly	Ala	Ile	Asn	His	Leu	Ser	Asp	Leu	Ser	Leu	Asp
				85					90					95	
Glu	Phe	Lys	Asn	Arg	Phe	Leu	Met	Ser	Ala	Glu	Ala	Phe	Glu	His	Leu
			100					105					110		
Lys	Thr	Gln	Phe	Asp	Leu	Asn	Ala	Glu	Thr	Asn	Ala	Cys	Ser	Ile	Asn
		115					120					125			
Gly	Asn	Ala	Pro	Ala	Glu	Ile	Asp	Leu	Arg	Gln	Met	Arg	Thr	Val	Thr
	130						135				140				
Pro	Ile	Arg	Met	Gln	Gly	Gly	Cys	Gly	Ser	Ala	Trp	Ala	Phe	Ser	Gly
145					150					155					160
Val	Ala	Ala	Thr	Glu	Ser	Ala	Tyr	Leu	Ala	Tyr	Arg	Asn	Gln	Ser	Leu
				165					170					175	
Asp	Leu	Ala	Glu	Gln	Glu	Leu	Val	Asp	Cys	Ala	Ser	Gln	His	Gly	Cys
			180					185					190		
His	Gly	Asp	Thr	Ile	Pro	Arg	Gly	Ile	Glu	Tyr	Ile	Gln	His	Asn	Gly
		195					200					205			
Val	Val	Gln	Glu	Ser	Tyr	Tyr	Arg	Tyr	Val	Ala	Arg	Glu	Gln	Ser	Cys
	210						215				220				
Arg	Arg	Pro	Asn	Ala	Gln	Arg	Phe	Gly	Ile	Ser	Asn	Tyr	Cys	Gln	Ile
225					230					235					240
Tyr	Pro	Pro	Asn	Ala	Asn	Lys	Ile	Arg	Glu	Ala	Leu	Ala	Gln	Thr	His
				245					250				255		
Ser	Ala	Ile	Ala	Val	Ile	Ile	Gly	Ile	Lys	Asp	Leu	Asp	Ala	Phe	Arg
			260					265					270		

His Tyr Asp Gly Arg Thr Ile Ile Gln Arg Asp Asn Gly Tyr Gln Pro
 275 280 285
 Asn Tyr His Ala Val Asn Ile Val Gly Tyr Ser Asn Ala Gln Gly Val
 290 295 300
 Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Asn Trp Gly Asp Asn
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 Gly Tyr Gly Tyr Phe Ala Ala Asn Ile Asp Leu Met Met Ile Glu Glu
 325 330 335
 Tyr Pro Tyr Val Val Ile Leu
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28

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66

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<211> 25

<212> DNA

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<223> Primer

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<211> 24

<212> DNA

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24

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<223> Primer

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17

<210> 29

<211> 75

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Asn Ala Glu Thr

1